

HOVEY LAKE
Posey County
2005 Fish Management Report

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EXECUTIVE SUMMARY

- A standard lake survey was conducted on Hovey Lake on October 6 to 17, 2005. Water chemistry data was also collected. Results from paddlefish gill-netting, conducted from September 22 through October 13, 2005, is also discussed to more accurately depict the lake's fisheries.
- No aquatic vegetation was found as the lake was extremely turbid with a Secchi disk reading of 10.6 in. The dissolved oxygen concentration was 10.8 ppm at the lake's surface and 2.41 ppm at the lake's bottom of 8 ft.
- A total of 2,151 fish, representing 29 species was collected during the standard survey. Gizzard shad, orangespotted sunfish, freshwater drum, white crappie, blue catfish, smallmouth buffalo, and threadfin shad comprised 90.2% of the total sample by number and 76.6% by weight. Flathead catfish, bighead carp, and black buffalo were captured in the paddlefish nets but not during the standard survey.
- Major changes since the 1995 survey are the addition of three exotic species to the lake (zebra mussels, bighead carp, and silver carp), increases in the freshwater drum, blue catfish and white crappie populations, and declines in the bluegill, channel catfish, and yellow bass populations.
- Hovey Lake provides excellent fishing opportunities for white crappie, blue catfish, and channel catfish. Hovey Lake white crappie exhibit superior growth with 73% of harvested crappie measured during a 2001 creel survey exceeding 10.0 in in length.
- Analysis of paddlefish data collected from 1995 through 2006 determined no trend in abundance or negative impact of bighead and silver carp on the paddlefish population.
- Hovey Lake should be resurveyed during 2015 and efforts should continue to curtail sediment accumulation and extend the life expectancy of this resource. Paddlefish monitoring should continue and be refined.

INTRODUCTION

Hovey Lake is an oxbow lake formed approximately 500 years ago when the Ohio River cut a different main channel. The original lake was clear, silt free, and up to 50 ft deep. By 1975, the lake covered about 300 acres and silt had reduced its depth to only 4 ft. Fishing success was poor. In 1975, when the Uniontown (now J.T. Meyers) Locks and Dam were completed, surface acreage increased to 1,400 and depth increased to 9 ft. The original lake basin is open water while the remaining 1,100 is flooded timber (bald cypress trees). The lake is located on the 6,963-acre Hovey Lake Fish and Wildlife Area, 8.3 mi south of Mt. Vernon on State Road 69.

METHODS

The current fisheries survey was conducted October 6 to 17, 2005 as a follow-up to the 1995 survey. Effort consisted of four gill net lifts, four trap net lifts, and 1 h of nighttime pulsed DC electrofishing. Two dippers collected stunned fish. Dissolved oxygen, temperature, pH, total alkalinity, and turbidity data were collected. Results from paddlefish gill-netting conducted on September 22 to October 13, 2005 is also discussed to more accurately depict the species present in the lake. Previous surveys by the Division of Fish and Wildlife were conducted June 1977, June 1995, April 2001, April 2002, and annual paddlefish surveys since 1995.

RESULTS AND DISCUSSION

Water temperature was 80°F at the surface and declined to 76.5°F at the bottom (8 ft). Dissolved oxygen was 10.8 ppm at the surface, dropped to 5.3 ppm at 5 ft, and fell to 2.4 ppm at the bottom. The lake was very turbid, with a Secchi disk reading of only 10.6 in.

Twenty-nine fish species were collected. The total catch was 2,151 fish, which weighed 849.64 lbs. Gizzard shad, orangespotted sunfish, freshwater drum, white crappie, blue catfish, smallmouth buffalo, and threadfin shad comprised 90.2% of the total sample by number and 76.6% by weight.

Gizzard shad was the most abundant fish species collected by number (58.0%) and third by weight (15.3%). This is nearly identical to the 1995 survey when they comprised 55.5% by number and 15.6% by weight. The 1,248 gizzard shad collected ranged in length from 2.8 to 14.1 in TL.

Orangespotted sunfish was second in abundance by number (9.6%) and because of their small size, were only 0.1% by weight. They ranged in length from 0.8 to 2.6 in TL. There has been little change from the 1995 survey, which ranked them second by number at 11.3%.

Freshwater drum increased substantially in relative abundance, from 0.5% (ranked 13th) in 1995 to 6.0% (ranked 3rd) in 2005. They were fifth by weight at 4.7%. They ranged in length from 4.2 to 20.4 in TL.

White crappie was fourth in abundance by number (5.1%) and weight (6.5%). Relative abundance increased from 3.7% by number and 0.8% by weight in 1995 when they were ranked sixth by number. Crappie ranged in length from 2.5 to 13.6 in TL. There was a substantial increase in larger fish from the 1995 survey. Only 17% of the crappie collected in 1995 were 8.0 in and larger compared to 58% in the 2005 survey. Average white crappie lengths at annulus formation were 2.9, 6.2, 9.1, 11.0 and 11.9 in at age 1 through 5. This growth is superior to the southwest Indiana average of 3.2, 5.7, 7.5, 8.9, and 10.1 in at age 1 through 5.

Blue catfish relative abundance also dramatically increased from the 1995 survey. They were the fifth most abundant species by number (4.3%) and the most abundant by weight (29.7%). In 1995, they ranked 14th by number at only 0.4% and were only 1.0% of the total catch weight. Blue catfish averaged 2.7 lbs per fish in 2005 and 1.7 lbs in 1995. They ranged in length from 4.2 to 27.0 in TL.

Smallmouth buffalo were sixth in abundance by number (3.6%) up from tenth in the 1995 survey. They were the second most abundant by weight at 20.1%. In the 1995 survey, they were 20.4% of the catch by weight but only 0.8% by number. The size range was from 6.1 to 24.1 in, which is much smaller than the 16.7 to 35.0 in size range that was collected in 1995.

Threadfin shad were tied for sixth in abundance by number (3.6%). They made up 0.2% of the catch by weight. In 1995, threadfin shad comprised 1.8% of the catch by number and 0.2% by weight.

The remaining 22 species comprised 9.8% of the sample by number and 23.4% by weight.

Paddlefish collections

Sixty-four collections from June 19, 2005 to October 11, 2006 resulted in the catch of 1,643 paddlefish. These collections were conducted for a variety of objectives: standard fish management surveys, MICRA (Mississippi River Cooperative Resource Association) binary tag tagging, ORFMT (Ohio River Fish Management Team) jaw tag tagging, movement assessment, and population monitoring. Numerous different collection methods were used to meet the various objectives; standard experiment multifilament gill nets, 4 and 5 in bar mesh monofilament nets, and both day and night DC electrofishing. Specific results have been previously discussed in numerous MICRA and ORFMT reports. Paddlefish tagged in Hovey Lake have been recaptured as far as 51.5 mi upriver in the Wabash River and as far as 400 mi upriver in the Ohio River downstream of the Meldahl Dam.

The mean standardized monofilament net catch rate (CPUE) was 0.0154 paddlefish per net min. Daily CPUE's ranged from 0.0004 on March 25, 1996 to 0.0378 on October 21, 1997 (Figure 2), combined monthly mean CPUE's ranged from 0.004 for March to 0.0239 for November (Figure 3), while combined annual mean CPUE's ranged from 0.0064 for 2004 to 0.0320 for 2001 (Figure 4). CPUE was generally highest during October and November when water temperature dropped below 24°C although no correlation existed between CPUE and water temperature.

No paddlefish abundance trend could be determined due to a number of factors; variable effort per year and month (only one collection was conducted during 2002 while nine were conducted during 1996), annual variations in water temperature, and variation in the condition of the collections (new nets were first used in 1995 and 2005). Paddlefish abundance in Hovey Lake would be expected to be quite variable as winter/spring ingress and egress is dependent upon Ohio River water levels.

DISCUSSION

Hovey Lake provides excellent fishing opportunities for white crappie, blue catfish, and channel catfish. Bluegill and largemouth bass are present along the shoreline but are generally small in size and not at the density of typical Indiana lakes. Other species that anglers also catch are flathead catfish, white bass, black crappie, sauger, redear sunfish, freshwater drum, yellow bass, bowfin and common carp.

Major changes in the fishery since 1995 include increases in the freshwater drum, blue catfish and white crappie populations and declines in the bluegill, channel catfish, and yellow bass populations. The blue catfish and channel catfish populations have flip-flopped since 1995. Blue catfish have taken over as the most abundant of the big three catfish species, replacing channel catfish as the dominant species. Flathead catfish were not captured with this survey equipment but still have a strong presence in the lake because several were caught with 4 and 5-in bar mesh monofilament gill nets while doing the paddlefish survey. These fish ranged from 26.2 to 38.2 in TL and had an average weight of 17 lbs.

The major change in this fishery was not readily apparent from the standard survey data. Two new exotic fish species have invaded this basin and established sizable populations in Hovey Lake. The bighead carp and silver carp made their way into the lake shortly after the 1995 survey. The first sighting was in July 1996 when three bighead carp were captured in paddlefish nets. It is not clear whether these were bighead carp or silver carp because initial warnings were to be on the lookout for bighead carp, so all *Hypophthalmichthys* species found were called bighead carp. Sometime later it was determined that there were two separate species present. Taxonomic differences were noted and they were then correctly identified as either bighead carp or silver carp. They have been collected every year since these first three were found.

Bighead carp were not captured with the general lake survey equipment. Six bighead carp were caught during the paddlefish netting ranging in TL from 38.4 to 41.3 in. Numerous larger bighead carp managed to break through the 60 lb test monofilament nets and escape as they were being removed from the net.

Silver carp seem to be the more abundant of these two species in Hovey Lake. Adults were not captured with the general lake survey equipment but 11 juveniles were

collected in the experimental gill nets, ranging in length from 5.7 to 11.0 in. Scales were taken and aged on seven of these fish, and all were determined to be young of the year. Taking a closer look at the circuli on the scales, there seemed to be two distinct groups. The 8.7 to 11 in group all had 27 or 28 circuli in the posterior field and the distinctly smaller 5.7 in fish only had 18 circuli in the posterior field, suggesting two separate spawning events during spring 2005. The paddlefish nets produced 20 adult silver carp from 30.5 to 38.5 in TL. These fish make their presence known to any boater on the lake with an outboard because they tend to jump out of the water when disturbed, often hitting the boat or even landing in it. With many individuals over three ft long, they can be a serious hazard.

These two species of Asian carp could have a negative impact on native species. They are in direct competition with paddlefish for food resources since they are both zooplankton filter feeders. Bigmouth buffalo, gizzard shad, and the young of most native species present in the lake may also be impacted.

Another invasive exotic species was confirmed present in Hovey Lake on October 29, 1998. Zebra mussels were found clinging to the hard surfaces of the boat dock at the ramp. They are another aggressive filter feeder that could potentially affect native fish and mussel species as well. The two main native predators of zebra mussels are freshwater drum and diving ducks. Freshwater drum numbers have increased dramatically since 1995 and may help keep the zebra mussel population in check.

These invasive species are probably here to stay. There is no known way of eradicating these exotics without harming the native species present. If it were possible to remove these species from Hovey Lake, it would be short-lived unless they could be eliminated from the Ohio River and Wabash River as well. The Asian carp would be an exciting catch for most anglers because of their large size and strength, but their feeding habits make them a rare take on hook and line.

Another species that was collected in the paddlefish nets but not in the standard survey was the black buffalo. Eleven black buffalo were caught ranging in length from 26.6 to 35.0 in.

White crappie is an essential species for anglers at Hovey Lake. A creel survey and a population estimate on the white crappie population were conducted during 2001.

The creel survey revealed that 30% of anglers targeted white crappie alone. Another 27% fished for “anything that bites”. A total of 830 crappie were harvested with a weight of 657.4 lbs. This represented only 4.7% of the total population estimate. Seventy-three percent of the harvested crappie were over 10.0 in TL. With harvest rates this low and high numbers of large fish, no additional regulations for this lake are recommended at this time.

The 2001 creel survey reported that catfish (all species combined) were the most targeted fish at Hovey Lake at 38%. The blue catfish population has never looked better. There are more and bigger fish than in 1995. Although the channel catfish population has declined it was the seventh most abundant fish by weight, down from fifth in 1995.

Hovey Lake is a crappie/catfish lake versus a bass/bluegill lake and that is how anglers view it. Only 5% of the fishermen surveyed during 2001 fished for bass and/or bluegill. The other 95% fished for crappie, catfish, or multiple species. This area provides exceptional opportunities to fish for big river species in a lake environment in Indiana.

With the new addition of Asian carp and zebra mussels, you might expect to see declines in sport fish populations. So far this is not the case. Paddlefish catch rates have not declined. Gizzard shad are still at pre-introduction levels as well. Zebra mussels have been documented clearing up the water from filter feeding at other lakes but Hovey Lake was more turbid than in 1995. This is probably due to a lack of suitable substrate for zebra mussels to attach to and plenty of native predators in this lake. These exotics have not caused any obvious major damage to this fishery but they are still new and need to be monitored for long-term effects.

One problem that still needs to be addressed is sediment accumulation in the lake. This is a primary concern because it is the limiting factor to the life expectancy of this lake. A feasibility study was done in 1999 to determine what it would take to restore the habitat and slow the incursion of sediment into the lake. A plan was laid out to dredge the main basin, stabilize the bank of the Ohio River where sediment is entering the lake during flood events, and reforest an adjacent area that is currently used for agriculture. The total cost of this plan is 4.25 million dollars. Of this money, 3.9 million dollars is associated with the dredging cost of this plan. If dredging is not an affordable option,

then bank stabilization and reforestation should be done to slow the rate of incoming sedimentation.

If nothing is done, Indiana will lose its last Ohio River oxbow lake. Oxbow lakes are an important part of a river system that normally become filled in while elsewhere, new ones are formed. Because of the establishment of the navigation system on the Ohio River, new oxbow lakes are not being created, as the main river channel is not being allowed to change. Steps should be taken to preserve this extremely unique, important, and valuable natural resource to the state of Indiana.

RECOMMENDATIONS

- Conduct a standard fisheries management survey during 2015.
- Continue efforts to slow rate of sediment accumulation and extend the life expectancy of this resource.
- Conduct ORFMT standardized paddlefish netting in Hovey Lake a minimum of two days in October and two days in early November.
- Create a Hovey Lake excel paddlefish database containing all data submitted to MICRA and ORFMT in order to determine the mean average eye-fork length of paddlefish collected annually.

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Date: April 7, 2006

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Brian M. Schoenung, Fisheries Supervisor

Date: May 19, 2006

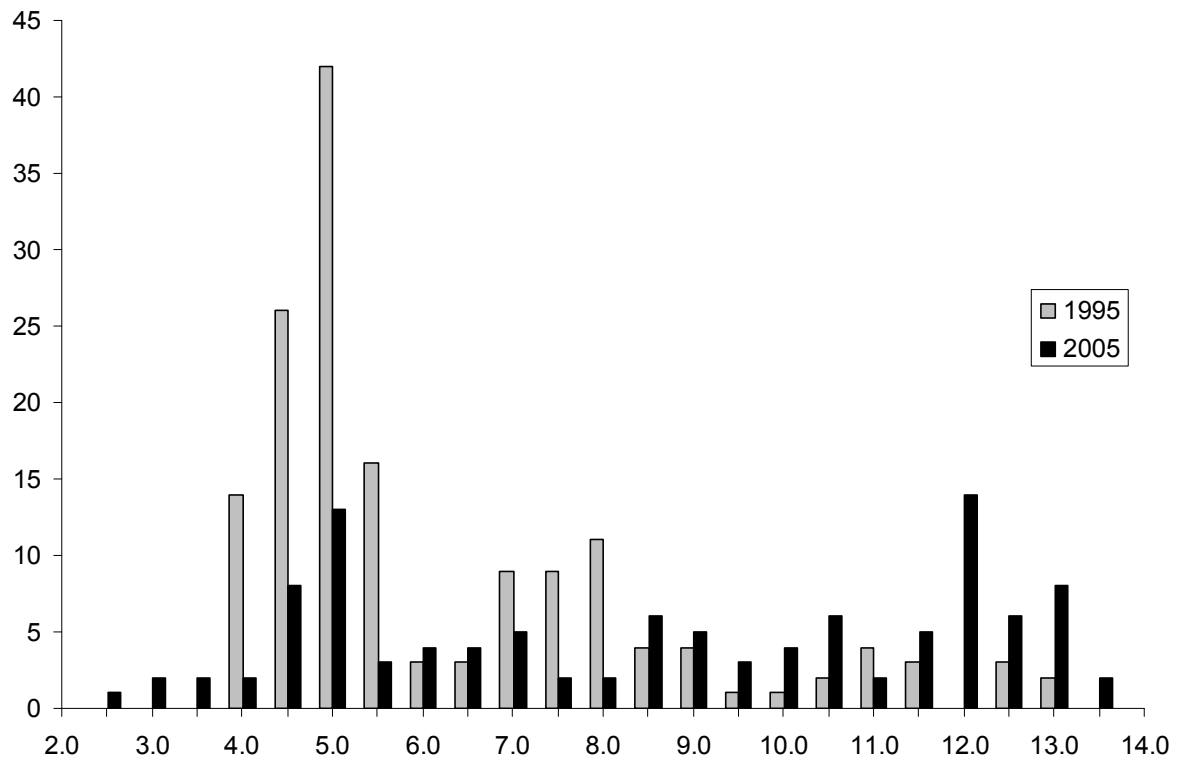


Figure 1. White crappie length frequency distributions from general surveys of Hovey Lake, 1995 and 2005.

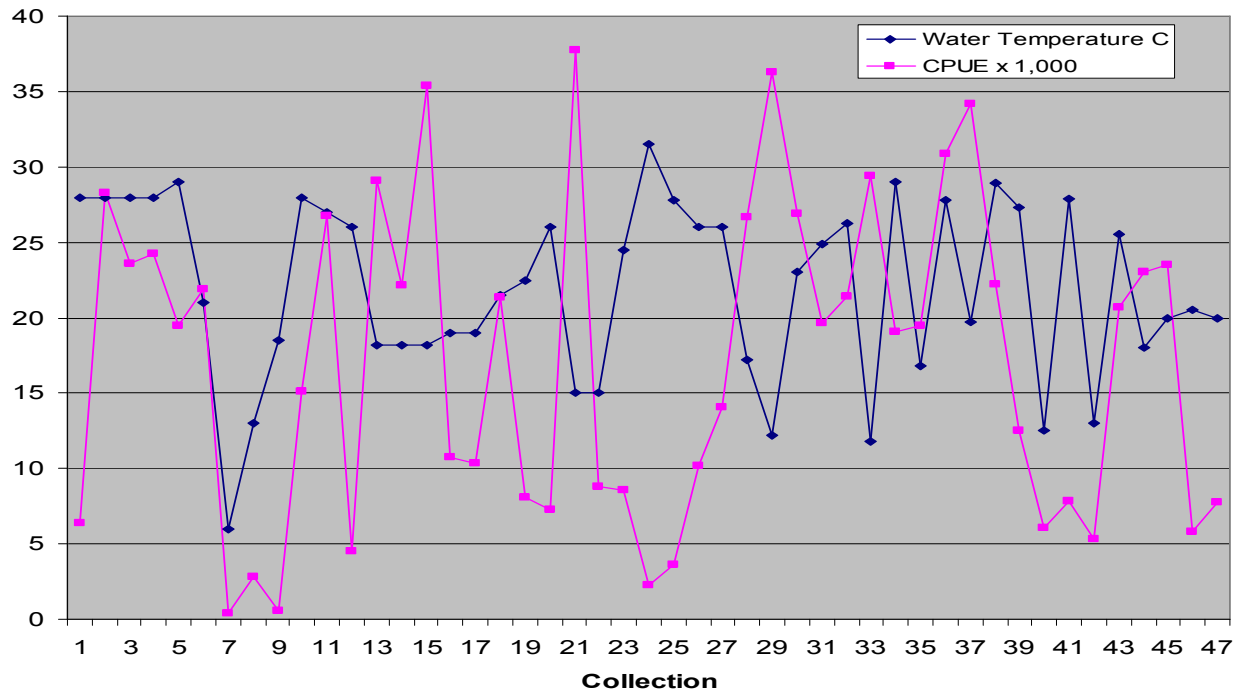


Figure 2. Hovey Lake paddlefish collection CPUE and water temperature C.

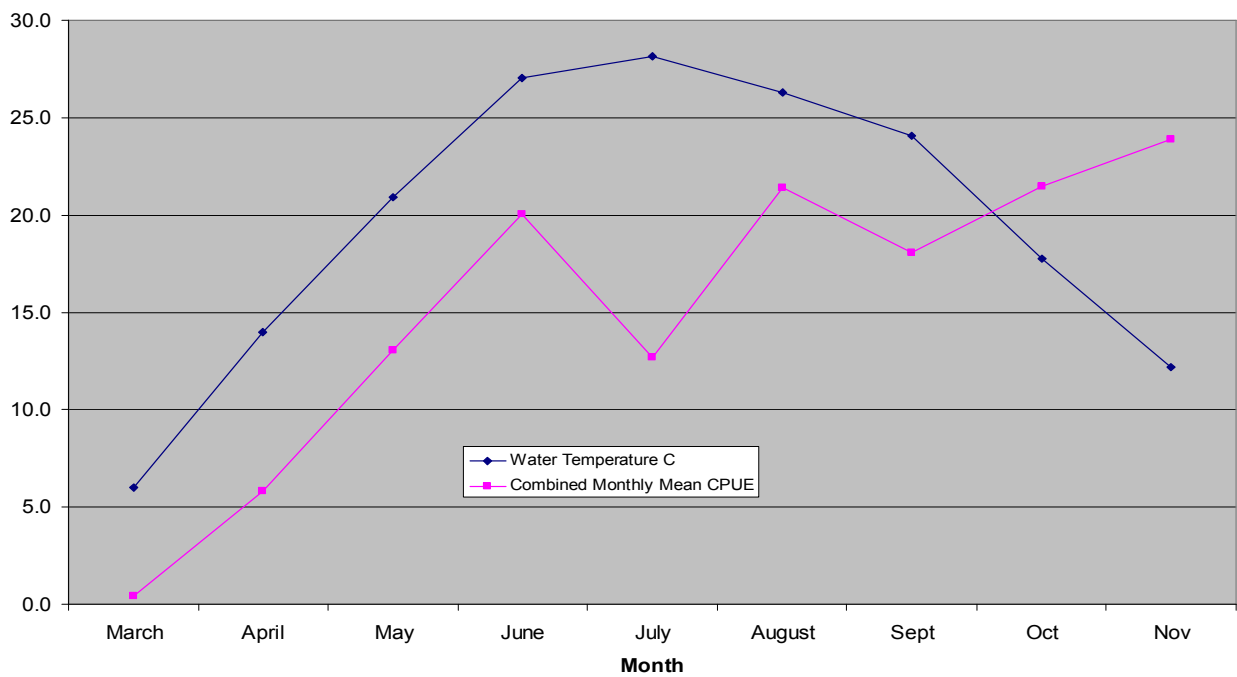


Figure 3. Hovey Lake paddlefish combined mean monthly CPUE and water temperature C.

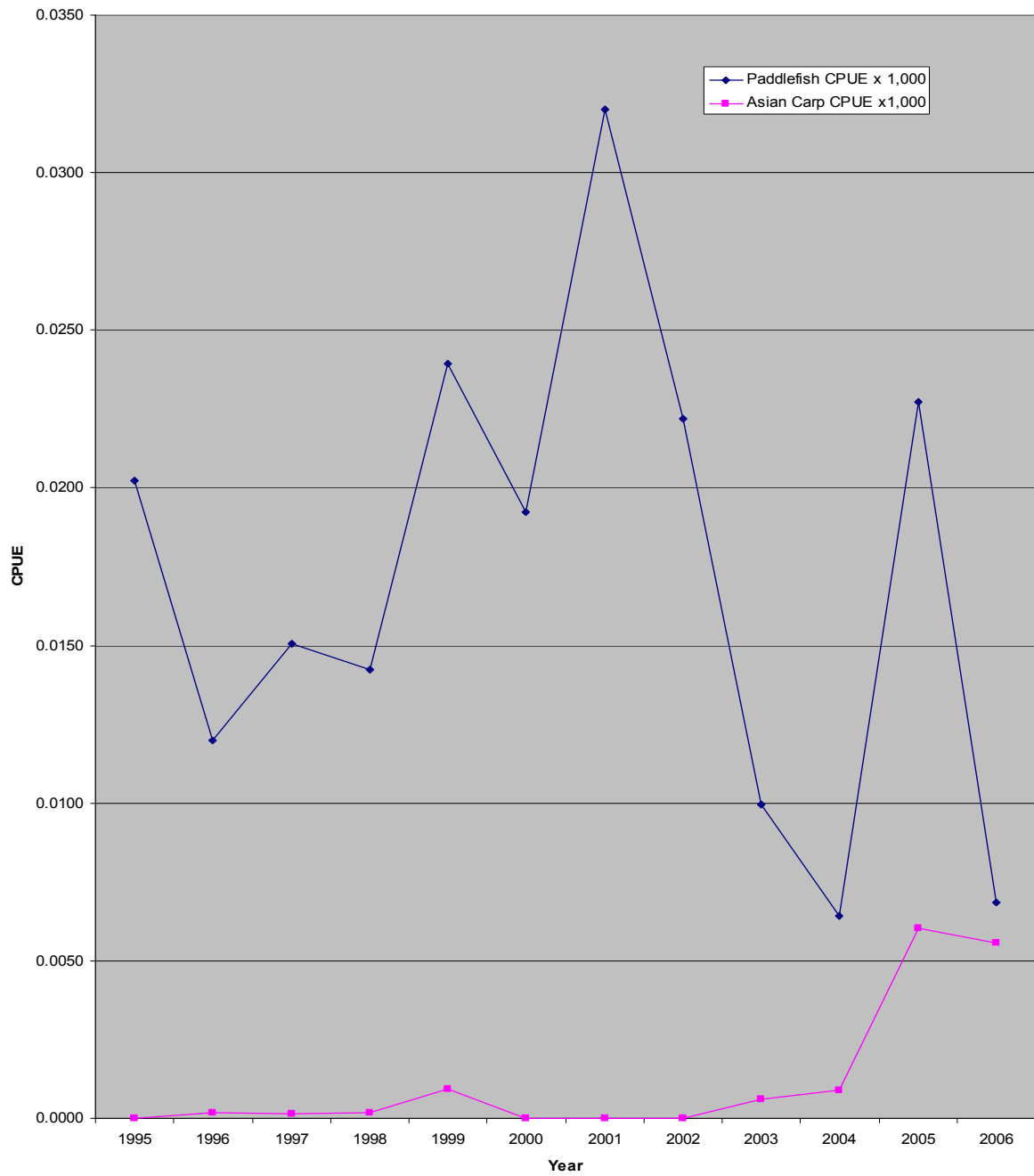


Figure 4. Hovey Lake annual paddlefish and Asian carp CPUE's x 1,000.